(10:08 a.m.)

THE COURT: Let's get the jury.

(Whereupon, the jury returned to the courtroom.)

THE COURT: Mr. Johnson.

MR. JOHNSON: Thank you very much, Your Honor.

THE COURT: Are we missing somebody?

JUROR #7: I got shut out.

THE CLERK: Sorry about that.

THE COURT: Okay.

MR. JOHNSON: Thank you.

CROSS-EXAMINATION

BY MR. JOHNSON:

Q. Good morning, Mr. Peterson.

A. Good morning.

Q. My name is Jeff Johnson, I represent Novell. You were shown that e-mail that you sent to Mr. Bastian, 646.

A. Yes.

Q. And it is fair to say that that was at a time period when you were on your way out of the company?

A. I didn't know it at the time, but I think Bruce -- I think that was in his mind looking back on it.

Q. And what you were essentially saying, and what you believed at the time, was that if WordPerfect built a better mousetrap they would be successful, right?

A. That they could be successful.

Q. Yes. They had that opportunity if they were able to build a good product?

A. Yes.

Q. Do you recall, sir, that during the late 1980s that Microsoft and IBM, IBM had a development partnership for OS/2?

A. Yes.

Q. Do you recall that Microsoft and IBM were telling the public that beginning in the second half of 1990, IBM and Microsoft planned to make their graphical applications available first on OS/2?

A. I guess I have a vague remembrance of that. I mean I know at some time they said that the application would come first on OS/2. I don't remember the exact date.

Q. Okay. And so during the late 1980s, both IBM and Microsoft were encouraging WordPerfect to develop for OS/2, right?

A. Yes. There was some dissidence there. Bill Gates was saying end of 1989 that we should develop for Windows.

Q. So you were getting some mixed messages; right?

A. Yes.

Q. Microsoft was really talking out of both sides of their mouth on this subject?

A. Yes.

Q. You mentioned on direct that WordPerfect had been led to believe that writing for OS/2 was the same as writing for Windows?

A. Yes.

Q. Can you explain that to the jury?

A. I think IBM represented that there would be some mechanism to port applications back and forth. So if you developed for one platform, you could run on both.

Q. And hadn't it been the case that Microsoft had promised the WordPerfect developers that it would provide compiler tools that would allow applications written for OS/2 to work on Windows as well?

A. I don't know that I would say compiler tools, but they had given us assurances that it would be possible to port the application quickly from OS/2 to Windows.

Q. And do you recall that there were actually a whole team of evangelists from Microsoft beating down your doors to write for OS/2 in the late 1980s?

A. They were primarily talking to developers. They didn't necessarily beat down my door, but doors in the company, yeah.

Q. And just an off chance, do you happen to remember Mr. Cameron Myhrvold?

A. Oh, sure.

Q. And Cameron was one of those guys from Microsoft

that was telling you to write for OS/2?

A. Yes.

Q. So as a member of the board in January of 1990, it was your opinion that WordPerfect should move resources to writing for Windows, right?

A. Immediately, yes.

Q. And you really didn't want Windows to succeed, but if they were going to succeed, WordPerfect needed to try to do their best, right?

A. Yes.

Q. So at some time in the early 1990s, WordPerfect started shifting significant resources over to Windows, right?

A. Yes. In May, I believe.

Q. Now, prior to Microsoft's release of Windows 3.0, the Windows platforms were not sufficiently developed for WordPerfect to write a word processor to them, correct?

A. That was our belief, yes.

Q. The first versions of Windows prior to Windows 3.0 were really buggy, too buggy for people to actually use and enjoy?

A. Those sound like my words.

Q. They are, sir.

A. Okay.

Q. So I assume you would agree with that?

A. Yes. There might have been a little hyperbole there, but those -- that definitely sounds like something I said.

Q. Now, once you began writing to Windows 3.0, one of the problems WordPerfect had in writing its first application for Windows is that WordPerfect's developers were following Microsoft's rules for developing on Windows and that made the product extremely slow, right?

A. For example -- yes. For example, when our version of WordPerfect would come up under Windows, it could take two minutes. And Microsoft's Word would come up in half the time or less. And, of course, that drove us crazy because we wondered if they were doing what they should be and we found out they were taking shortcuts around their prescribed official statements to make their stuff run faster.

Q. When you said "they" in that --

A. They I mean Microsoft.

Q. Microsoft was taking shortcuts that they hadn't revealed to WordPerfect?

A. That they, yes, that is right.

Q. And, of course, the Utah developers, working for WordPerfect, were very adept at following the rules, right?

A. Unfortunately, yes. They were rule followers, yeah.

Q. And they followed all of the rules that Microsoft had given them about developing the product for Windows 3.0?

A. I don't know if it was each and every one, but they, in general, followed the rules until we saw that it put us at a disadvantage and then we started changing things.

Q. So that was one of the things that delayed the release of WordPerfect 5.1 for Windows, right?

A. Perhaps. I am not sure about that. I mean there was extra work that needed to be done to speed up the execution, but I'm not sure if that held up the product.

Q. Well, it would be fair to say that your opinion is that the delay in developing a first version of WordPerfect for Windows did not really hurt WordPerfect, right?

A. I think it would have helped us to have come out sooner, especially if the product would have been as good or better than the one we delivered. But I don't think that the delay made it impossible for us to succeed on the Windows platform.

Q. Do you recall, Mr. Peterson, that when you left WordPerfect in March of 1992, WordPerfect still had the largest install base of word processor customers in the PC operating systems market?

A. Yes. We still -- I would think over all we still

out sold Microsoft in that first quarter. I couldn't be sure.

Q. Let me show you what we have marked as demonstrative Exhibit 21. Mr. Peterson, we have made a demonstrative containing IDC data regarding total IBM compatible installed based WordPerfect and Word on Windows in DOS in 1991 and 1992. Do you recall that IDC data was one of those outfits that you could get data from by paying a fee?

A. Yes, I recall that acronym.

Q. And is it your recollection that in 1991 Microsoft Word had a combined installed base on Windows and DOS totalling approximately three million?

A. Those -- I didn't track the installed base, but those numbers look realistic to me but those aren't numbers that I had in my head.

Q. And in 1991, the WordPerfect's installed base was about double that?

A. Yes.

Q. And again, if we look at 1992, Microsoft Word's combined installed base was approximately 5.5 million, while WordPerfect's installed base was approximately 8.8 million. Does that sound about right to you?

A. It sounds about right.

Q. Let me show you -- did you follow fairly closely

shipments in revenues between WordPerfect and Microsoft's word processors on Windows and DOS during the period you were there in 1991 and 1992?

A. No. I kept track of our numbers. I didn't look that closely at Microsoft numbers.

Q. Do you recall, sir, that even in 1992 WordPerfect's revenues from word processor software on both of those platforms was equal to Microsoft and its shipments exceeded Microsoft's?

A. I didn't have those numbers at the end of the year of 1992.

Q. So it would be true that when you left WordPerfect in March of 1992, WordPerfect still had the largest install base of word processor customers in the PC operating systems market, right?

A. I believe that to be true.

MR. JOHNSON: Thank you, Mr. Peterson.

THE COURT: Thank you.

Anything further, Mr. Paris?

MR. PARIS: Just a couple of very quick questions.

REDIRECT EXAMINATION

BY MR. PARIS:

Q. If you could leave up demonstrative 21, Mr. Goldberg. So just looking at what Mr. Johnson was just asking you about, Mr. Peterson, you compare -- in looking at

1992 and I'd even asked you some questions about this, about Microsoft's shipments on Windows versus WordPerfect shipments on Windows, those would be the red portion of the two bars on the right side of the graph; is that correct?

A. Yes.

Q. And at least by my estimation it would look like Microsoft's share of the Windows base or whatever we're calling it in this demonstrative is about double the size of WordPerfect's? Do you see that, is that fair?

A. That is a sad chart.

Q. And this is what you were worried about, Mr. Peterson?

A. Yes.

Q. This was the future, right, it was Windows not DOS, right?

A. Windows had a better future than DOS, yes.

Q. And it turned out, in fact, that Windows did have a better future than DOS?

A. I believe so, yes.

Q. Mr. Johnson asked you -- could you take that down. Thank you. Mr. Johnson asked you some questions about OS/2 and about how Microsoft had encouraged developers at WordPerfect to write to OS/2; is that right?

A. He did ask some questions and Microsoft did encourage us to write for OS/2.

Q. And both Microsoft and IBM were encouraging you to write for OS/2?

A. That is absolutely true.

Q. Because at the time OS/2 was a joint product of both Microsoft's and IBM's, right?

A. Yes.

Q. And at some point after that period of time where Microsoft was encouraging you to write to OS/2 that changed, didn't it? Do you recall that?

A. Yes. As Mr. Johnson said, they were talking out of both sides of their mouth. And part of the company was saying write for OS/2, part of Microsoft was saying write for Windows.

Q. Now, when I'd asked you questions on direct and I think you mentioned this to Mr. Johnson, at some point in late 1989, I think you said October or November of 1989, you had an interaction with Mr. Gates; is that right?

A. Yes. I don't remember the exact date, but we were passing through a hall -- through an entrance and he stopped me and said you need to write for Windows.

Q. So Mr. Gates told you specifically you need to write for Windows; right?

A. That is right. In spite of all of the other people at Microsoft saying he said yeah, you need to write for Windows.

Q. So Mr. Gates, the CEO of Microsoft, said write for Windows, right?

MR. JOHNSON: I think he answered that question.

Q. (By Mr. Paris) And --

A. He did. He did. He did.

Q. I think so, too. And then a month or two after that, Microsoft gave WordPerfect a beta version of Windows 3.0, correct?

A. That is true.

Q. Okay. And the last point, Mr. Peterson, I think Mr. Johnson asked you some questions about delay and the cause of delay writing WordPerfect 5.1 for Windows.

Do you remember being deposed in this action where you were asked questions to that effect?

A. Yes.

Q. And do you recall what you said?

A. I said a lot of things.

Q. But I'll give you some guidance. Do you recall saying that it was the board's decisions that caused the delay in WordPerfect writing for Windows?

MR. JOHNSON: Your Honor, that's really not a proper use of the deposition. He can ask the question and then use it to refresh if he needs to.

THE COURT: It seems to me it was appropriate, but maybe I'm wrong. What do you recall saying?

Q. (By Mr. Paris) What do you recall saying?

A. As far as the OS/2 delays, I would say part of it was because of what we were hearing from IBM and Microsoft. Part of it was because we wanted to believe OS/2 would win because we didn't want Windows to win. Part of it was self-inflicted, that being we didn't want it to win so we waited. Part of it was a bias towards OS/2 because IBM seemed like the nicer company. So there were a lot of reasons for the delays. And we could have started sooner if we had not waited.

Q. And I think you said, Mr. Peterson, just to correct what I think you said, you wanted OS/2 to win because you didn't want Windows to win; is that right?

A. We absolutely didn't like Microsoft or any of their products and so we wanted OS/2 to win.

Q. And you preferred that IBM would win because you saw it as less of a threat to WordPerfect and you saw Microsoft as a threat to WordPerfect; correct?

A. That is correct.

MR. PARIS: I have no further questions.

THE COURT: Mr. Johnson?

MR. JOHNSON: Just one. Do you believe that, Your Honor?

THE COURT: Pardon me?

MR. JOHNSON: That I only have one question.

THE COURT: I will believe it when I hear it.

RECROSS-EXAMINATION

BY MR. JOHNSON:

Q. Mr. Peterson --

A. Yes, sir.

Q. -- were WordPerfect customers, the users of WordPerfect, were they a very loyal group to your product?

A. I would say they were a very loyal group.

MR. JOHNSON: Thank you.

THE COURT: I believe it. All right. Thank you very much Mr. Peterson. Next witness? You're finished. I know it is a great disappointment to you.

MR. TULCHIN: Your Honor, should we take a moment for Juror Number One who is coughing just to make sure she is okay?

THE COURT: I think she is okay.

JUROR NUMBER 1: I'm okay.

JUROR NUMBER 2: She is just dying but she is okay.

MR. TULCHIN: For its next witness, Your Honor, Microsoft calls Professor Kevin Murphy.

THE CLERK: Raise your right hand, please.

KEVIN M. MURPHY,

called as a witness at the request of the Plaintiff, having been first duly sworn, was examined and testified as follows:

THE WITNESS: Yes, I do.

MR. CLERK: Please be seated. Please state your full name and spell it for the record.

THE WITNESS: Kevin M. Murphy, that is K-E-V-I-N, middle initial M, last name M-U-R-P-H-Y.

DIRECT EXAMINATION

BY MR. TULCHIN:

Q. Professor Murphy, to start with, could you tell the jury what your current position is? What do you do?

A. Yes, I am a professor at the University of Chicago where I teach in both the graduate school of business and the department of economics.

Q. And Professor Murphy, where did you attend college?

A. I was an undergraduate at UCLA. I went to graduate school at the University of Chicago.

Q. When did you get your degree from UCLA?

A. I got a BA degree from UCLA in 1981, I subsequently got a PhD degree from the University of Chicago in economics in 1986.

Q. All right. Beginning in 1986, when you got your doctorate, your PhD in economics, what did you do next in your professional career?

A. I took a position as an assistant professor at the University of Chicago, Graduate School of Business. I

had actually been teaching in the business school a few years before that. I started teaching there, I believe, in 1983. But my professor position started in 1986 after I received my PhD degree.

Q. And moving forward after 1986, would you tell the jury a little bit about your professional experience?

A. Well, I have been at the University of Chicago ever since. In 1986 I became an associate professor and then a full professor. I was then made a chaired professor I had George Pratt Shultz Professorship for a while.

I currently have the George J. Stigler Distinguished Service Professor of Economics, I believe, is the title. So I have just kind of been working my way through the University of Chicago since 1980 -- basically since '83, but officially since 1986.

Q. What sort of courses do you teach at the Business School and in the Department of Economics?

A. In the Business School I teach an advanced micro class which is where the students in the business school who want more advanced treatment of what we call microeconomics. I also teach a public policy class that introduces business students to issues in public policy.

And in the Economics Department, I co-teach with Gary Becker, the first half of the year, of the core sequence in economics for PhD students. I also teach a course for

second year economic students in the PhD program. So I teach MBAs in the business school, and PhDs in the economics department.

Q. And Professor Murphy along the way over the last 25 years since 1986 have you published any scholarly articles in the field of economics?

A. Yeah, I have published 65, 75, something like that, different articles and chapters and books and things like that in economics.

Q. And what -- can you give us some examples of the subject areas that your articles are in?

A. Yeah, well, I have kind of done a fairly wide range of things. I have done things in -- I did a lot of work on income and equality and changes in the income distribution in the United States. That was some of the early work on that. I have done recently a lot of work on the value of health and longevity and the economic value of medical research. I have published papers on antitrust and in competition on, you know, just a wide range of areas over the years.

Q. And Professor Murphy, have you received any awards in connection with your work in the field of economics?

A. Yes, I have really received a number of awards. Two of them would be in 1987 I was awarded the John Bates

Clark Medal which at the time was awarded every other year to sort of the most prominent economist in the United States under the age of 40. I then later won a MacArthur Fellowship about six years ago.

Q. And what is the MacArthur Fellowship, if you would explain that please for the jury?

A. Well, the MacArthur Foundation every year announces I believe it is about 20 fellows across a very wide range everything from academics to business people to people who run community organizations. It is a really -- it is a really interesting program that gives grants to a wide range of people for their contributions to whatever field they're in.

Q. Is there a commonly used name for the MacArthur Foundation Award?

A. Yeah.

Q. Don't be too bashful.

A. I don't like the name but people do -- people sometimes call it a genius grant, I think. I'm not sure that is really what it means, but that is what people call it.

Q. In addition to your current position at the University of Chicago, do you hold any other positions?

A. Yes, I'm -- I'm a principal or I think the official title is Managing Director at Navigant Economics.

It used to be called Chicago Partners which is a subsidiary of Navigant Economics, N-A-V-I-G-A-N-T.

Q. Professor, have you been qualified as an expert in antitrust economics in any prior court cases?

A. Yes, I believe I have.

Q. How many, roughly?

A. I don't know the number. I think I have testified in, I don't know, between five and 10 cases in court. I have been qualified as an expert in economics and/or an expert in antitrust economics in all of those.

Q. And can you give the jury any recent examples of assignments you have had in your role as a consultant or advisor?

A. Yeah. Actually I just finished working with the National Basketball Players Association in the negotiations with the NBA. Thankfully after two years of excruciating pain, actually finally got a deal done not very long ago. So that is -- that is something off my -- off my plate that I am very glad to have done.

Q. And in that dispute, which side were you on in the NBA matter?

A. I worked with the Players Association so I represented the players in their negotiations with the owners.

Q. Now, in connection with your work in this case,

what is your compensation?

A. My compensation in this case is $980 per hour.

Q. And Professor Murphy, in general, can you tell the jury what you have done in connection with your assignment in this case?

A. Yeah. I guess, you know, we originally just like you do in all of these matters, we started with what were the issues, what was -- what were the questions we needed to answer to understand the claims that have been made in the case. So that involved understanding the marketplace, it involved getting the evidence on what, you know, people had said in depositions and what the documents said, and a big part as an economist is looking at the data, and looking at the numbers to seeing what the numbers and data from the market had to say.

You know, we had done prior work in these areas before, so we were able to draw on some of our earlier work in that area. But it is the usual place to start. Start with the questions. The questions tell you the information you need and then you start working your way through the information and do your best to try to answer the questions that are on the table.

Q. And Professor Murphy, today I think is November -- sorry, I'm way out of track. The days have been merging together. Today is December 7th. The trial in this case

started, I think, on October 17th, 16th?

THE COURT: Of what year?

MR. TULCHIN: It seems like a long time, Your Honor. But we're getting close. I know we are.

Q. (By Mr. Tulchin) And Professor Murphy, in preparation for your testimony here today, have you reviewed any of the testimony that has been given by prior witnesses in this case?

A. Yes, I have. I have reviewed a number of different witnesses' testimony in this case and some I read in their entirety, some I read parts of their testimony, but I have been able to read through a number of the witnesses' testimony in this case. Particularly the ones that bear most closely on the areas that I addressed.

Q. And is there one in particular that bears most closely on the opinions that you're going to offer today?

A. Yeah. You know, for example, obviously Professor Noll's testimony, I read that a couple of times. And I also read the testimony of Mr. Frankenberg and I also read Mr. Gates's testimony. I read through parts of the testimony of some of the WordPerfect developers and people like that.

MR. TULCHIN: Your Honor, we offer Professor Murphy as an expert in antitrust economics.

THE COURT: Mr. Taskier, any objections?

MR. TASKIER: No objections, Your Honor.

THE COURT: Okay. The Professor can give his opinion.

MR. TULCHIN: Thank you, Your Honor.

Q. (By Mr. Tulchin) Professor Murphy, you mentioned Roger Noll a moment ago. Do you know Professor Noll?

A. Yes, I do. I have known Professor Noll for a while. Some people I work with were students of his, for example, so I kind of knew him indirectly there. I actually worked with Roger on a project recently actually so we were actually working together on something not too long ago.

Q. And in connection with the opinions that you will be offering to the jury today, and in order to do your analysis, did you come to any understanding as to what the relevant market is in this case?

A. Yes. Well actually in this case the plaintiffs had put forward a relevant market, and I think you have probably heard about it so far, but it was the market for operating systems for X86 compatible PCs. So I adopted that market definition for purposes of my analysis.

Q. And for purposes of that definition, IntelCompatible PC operating systems, is the Apple MacIntosh or the operating system for the MacIntosh within the market definition during the relevant period in this case?

A. No, it would not be. At the time at issue in this case, the MacIntosh operating system ran on MacIntosh

computers that used Motorola chips as opposed to Intel X86 chips. So it would not be in the market as defined in this case.

Q. Professor Murphy, again in connection with your opinions, did you come to any understanding as to whether or not Microsoft Corporation had monopoly power in that market, the market for IntelCompatible PC operating systems during the time period relevant to the case?

A. Yes, I did. I did conclude that Microsoft had monopoly power throughout the period relevant to this case.

Q. And what is your understanding as to what Roger Noll, Professor Noll, said about the same subject?

A. I believe he said the same thing.

Q. Do you have any view as to whether or not Microsoft's monopoly power in that market arose as a result of pro-competitive conduct or otherwise?

A. I think my understanding is that their position in that market arose largely from pro-competitive things that they had done in the past.

Q. Such as what?

A. For example, they produced an operating system that was successful in attracting a large number of developers. And that really was the key to their success is they had an operating system, originally MS-DOS, that was successful at getting people to write for their platform.

And that was kind of their whole concept of what would make them successful was not just what they did, but what they could get other people to write for their platform and really push their market forward. That then carried forward to what they did with Windows. So I think that was really the key to their success was really getting people to buy in and write software for their platform.

Q. As far as you understand things, Professor Murphy, do you and Professor Noll agree on whether or not Microsoft's monopoly was acquired lawfully?

A. I think we're in general agreement on that. I think we would generally agree that those were the key factors allowing Microsoft to get to the position it was in at the start of the period we analyzed here.

Q. Do you have any understanding as to whether the Plaintiff Novell contends that the monopoly was acquired in any way other than a lawful manner?

A. I don't believe they're contending that it was acquired in any other way. So I don't think that's a contention in this case.

Q. Now, the jury has listened to testimony of a number of experts, I think you're expert number five, but I will call you by name, not number five. And as with other experts, did you ask that certain slides be prepared in connection with your testimony?

A. Yes. Yes, I did. In this case and generally I do.

Q. And if we could show slide number 301, this is one of the slides. Well let me ask the question, Professor. Is this one of the slides that you asked us to prepare?

A. Yes, this is the first slide I asked you to prepare.

Q. Right. Forgive the numbering system, we're starting at 301 for reasons that I'm not sure any of us understand. It just is what it is.

A. Shouldn't it be 501 since I'm number five?

Q. Well --

A. You guys have got your own system obviously.

Q. Yeah, they didn't tell me what it was. But here we go.

What does this slide depict, Professor, and how if at all does it relate to your opinion about monopoly power?

A. Well, this is a slide that gives the share of total operating system sales within the PC operating system market as so defined in this case. So Apple is not in here. This would be the share of those that were sold by Microsoft. It would include both Windows and DOS based systems. And as you can see throughout the period, Microsoft's share is never really below 90 percent. They

had 90 percent of the market virtually throughout. Now this is -- this is based on the same IDC data that we heard about before. I think we just heard Mr. Peterson talk about the IDC data. Actually the years from 2005 to 2009 are actually predicted because that is when the IDC data we relied on ended. But this is representative of Microsoft's overall position. That was a very large share. You can say they had a dominant position in the market throughout that period.

THE COURT: I'm just curious, MacIntosh is now in the market, right? I mean it wasn't then.

THE WITNESS: It wasn't. And, you know, I think this is keeping -- this would not put MacIntosh in --

THE COURT: It would be lower.

THE WITNESS: It would be lower if we put MacIntosh in. It is really not --

THE COURT: It is not relevant.

THE WITNESS: It is really not that -- it's funny because when MacIntosh came in, but it is still basically an independent system because they don't sell their operating system to be put on other computers.

THE COURT: That is fine. And in any event it has got nothing to do with this case, but it has lots to do with my curiosity.

THE WITNESS: It is an interesting question about how

you would approach things subsequent to their change. It is an interesting question.

Q. (By Mr. Tulchin) As long as the Court asked this question, Professor, do you recall when it was that Apple first started using Intel chips for its operating system?

A. Somewhere around 2006, something like that. I think that is about right. Sometime in the --

Q. But certainly back in the period of the mid to late nineties Apple by definition wasn't in the market as Novell has defined it, correct?

A. No. Exactly. That is -- in the period we're talking about, of course, in this case, it is way back on the left of this graph, basically a decade before Apple made the switch.

Q. All right. Professor Noll -- I'm sorry, Professor Murphy.

A. You and I are going to have to talk.

Q. I may do that again. I may do that again. If I do, please forgive me.

A. Roger is the one who needs to forgive you.

THE COURT: I expect you to make mistakes but not that one.

THE WITNESS: We don't even look alike.

MR. TULCHIN: Are you keeping track of the number I have made, Your Honor?

THE COURT: No. No, no, no. It would be very, very small.

Q. (By Mr. Tulchin) Professor Murphy, you asked us to prepare some slides that summarize the essential opinions that you have come to in the case, did you not?

A. Yes, I did.

Q. Let's look at slide 302. This is entitled Summary of Opinions. And we're going to go through them, of course, in some detail. But could you at least explain to the jury at the outset what these two opinions are?

A. Yeah, I would be happy to. Professor Noll really put forward two theories of how changes in development regarding WordPerfect's word processing spreadsheet and suite software could affect competition in the PCOS market. And it is important --

Q. Before you go on, there are so many acronyms floating around. PCOS means what?

A. PC Operating System market. So -- so I was going to explain. So first of all, the one question you need to ask yourself is well how do I get from here to there? Because WordPerfect's software was applications software, it was word processors, allows you to write documents and it was spreadsheets allowing you to make spreadsheets and calculate numbers. And what this case is about is somehow changes there. Developments in that area have to have an

effect on competition between the operating systems. That is the core software that runs the computer. That would be like Windows or OS/2. And so you have two theories of how you got from here to there in some sense. How you made things that affected applications, affect operating systems. So it is not quite clear why that would happen. So there were two theories. One is what I would call, and I think he wouldn't disagree with the name, which is the franchise application theory. And that is the theory basically that said if WordPerfect software was to become very popular on Windows, and if that same software was available on other operating systems, then when people went to move from Windows to another operating system, they would find it easier because they would be able to use their same old software when they got there. So that was what we called the franchise application theory.

I'll come back and talk about whether that is going to work or not, but that is the basis of the theory. And so opinion number one relates to that theory. And it says PerfectOffice, WordPerfect and Quattro Pro, would not have been sufficiently popular that their availability on non-Microsoft Operating Systems would have enhanced competition in the PC Operating System market. And if that is not the case, then this theory doesn't hold.

And we're going to try to explain why I reached

opinion number one. Based on looking at the data, looking at the facts, working our way through, we're going to try to understand how I got to opinion number one.

Q. Okay. And before we talk about opinion number two, just to be clear on something, and I think that the jury certainly has this, but the WordPerfect word processor, did that compete in the market for PC Operating Systems?

A. No, it did not. That is what I was trying to say before. The WordPerfect software was a way to write documents. It was what an app, what we call an applications piece of software, something that allowed you to write documents.

And the allegation in this case is that because that software was delayed in getting to market, that set forth a chain of events that would ultimately mean that there would be less competition in this other place which is competition between Windows and OS/2 and Linux and other operating systems. And, you know, so that is -- that is really the tension there. How do you get from A to B, and we're going to talk about that.

Q. And Professor, does your answer there apply equally to PerfectOffice and to Quattro Pro? Those are not operating systems?

A. Again, those are application software. And the franchise application theory is the one I laid out a moment

ago that those, as a group, would become sufficiently popular on Windows, then it would facilitate people moving to another operating system.

Q. Thank you, sir. And maybe we could then move to this summary and your opinion number two. Could you tell the jury please, Professor, what this is about?

A. Okay. Now, this is -- this is a separate theory of how you get from A to B. So again, the theory is if it hadn't been, for example, for the withdrawal of the NameSpace extensions, or the not documented NameSpace extensions, the theory goes WordPerfect would have been released, WordPerfect Office or Windows 95 would have been released earlier. Had it been released earlier, it would have been more popular and that greater popularity would have allowed it to then help generate competition for the Microsoft operating system.

Again, you have to ask the question, it is not operating system software, how does it generate competition? Well, this is the MiddleWare theory. So the idea of the MiddleWare theory is that WordPerfect's software, in particular WordPerfect, Quattro Pro, PerfectOffice and other software, exposed APIs. I'm sure you have heard the name APIs before, application programming interface.

Q probably too often.

A. You guys are going to have nightmares about APIs,

I'm sure. But the idea was they exposed APIs. And if software developers would write their software to those APIs rather than the APIs in Windows, and those APIs were then also available on other operating systems, then those applications that run on Windows would be able to run elsewhere, again allowing people to move their operating systems from one to another.

The key question is, of course, are people going to write to those APIs? Would have people written to those APIs had it not been for the name extension -- NameSpace extension. The answer is in the actual, people didn't write to those APIs. But the theory here is had things been different, it would have been dramatically different, lots of people would have written and it would have had this cascade effect, you know, we know that is the key to their theory.

Q. Now Professor, did you examine each prong of the theory that you just described, Professor Noll's second theory?

A. Yes, I did. Just like with theory one, we went through it step by step to analyze each prong of the theory.

Q. And what is your opinion number two, if you could summarize it for the jury?

A. I -- that really it -- it really it turned out there are three criteria they need to meet, and these are

actually criteria that Professor Noll himself talked about. We will get back to them later. But it doesn't meet -- the software doesn't meet any of those three criteria, and because it doesn't meet those three criteria, they're not going to -- remember they have to meet all three, if they fail any of them, they're not going to make it. They didn't certainly make all three of them. And therefore, like I say here, based on that, we conclude that Professor Noll's cross platform MiddleWare theory lacks viability. That is, it really isn't consistent with the evidence.

Q. Professor, on your slide number 302, the one that we're looking at, there is a third bullet point. Does this set forth areas of agreement or disagreement with Professor Noll?

A. This is actually a point I think where we agree 100 percent. And that is, under both theories, under both, you know, the franchise application theory and under the MiddleWare theory, the whole story that gets the ball rolling is that the withdrawal of support for the NameSpace extension APIs could not have harmed competition. That is, it needs to -- in order for it to have an effect, it must be the case that absent that event, that is, absent the lack of documentation for the NameSpace extensions, (A), WordPerfect's software would have been released in a timely fashion; and (B), that would have been highly successful.

That is sort of what gets the ball rolling under either theory.

The way to think about these theories are that delay is the catalyst. That is what gets it started. And then each of these two theories have a different route by which that ultimately affects competition. And what we will talk about later, if you didn't get the ball rolling, obviously the other parts of the theory don't matter because you need to have that delay which starts the whole process. And the evidence is going to be that they wouldn't have been sufficiently popular. But what Professor Noll and I agree on is that is the key part of the story. That the delay is a necessary component of either theory.

Q. Let me just make sure I understand this, Professor. Are you saying that without delay, delay in effect is a prerequisite. Before you reach either of Professor Noll's theories, you have to first come to the conclusion that the withdrawal of support for the NameSpace extension APIs would have caused the delay?

A. Yes.

MR. TASKIER: Your Honor, I think that is leading and it would request a legal conclusion.

MR. TULCHIN: It is actually not a legal conclusion, Your Honor, it is a matter of economics.

THE COURT: Overruled.

THE WITNESS: Let me -- I can explain, yeah. There are actually two steps of that first part. One is --

Q. (By Mr. Tulchin) Before you explain the steps, I just want to make sure that the jury understands one point.

Was it part of your assignment, in connection with this case, to come to some opinion about whether or not Microsoft's conduct actually caused a delay in the release of Novell's products?

A. That is not a conclusion that was for me to decide. I looked at the evidence regarding that and -- and, you know, there is certainly evidence that would suggest that, you know, that that wasn't the cause. But that is ultimately for the jury to decide. The jury is going to be the people who have to decide that there was that delay. What I am saying is as a logical --

THE COURT: By the way, that is absolutely right.

THE WITNESS: As a logical matter, what you need though is delay is a key component. That is, if the delay didn't happen because of Microsoft's actions, if it happened for some other reason, then the chain of events as a matter of logic doesn't hold together. But it is not just the delay. Because the key component of the theory is absent the delay, the software of WordPerfect would have been substantially more popular. You need that too. Because if it doesn't become substantially more popular on Windows,

neither one of these theories is going to carry itself off. So you need not that there was a delay, but that the delay had a substantial effect on WordPerfect's success. You need those two. And then once you have got those two, you need to have one of these two theories fit together and fit the facts.

Q. (By Mr. Tulchin) Let's look at slide 303. This was the next one that you asked us to put together, Professor.

And can you tell the jury what it is that you are communicating here? This is entitled Additional Problems With Professor Noll's Theories?

A. Yes. Before we go through the details of each theory, there is two areas of sort of I think conflict for theory problems that apply to either theory. First of all, theory number one, the franchise application theory, or for that matter theory number two, the MiddleWare theory. One problem they have is both of these theories, as I said a moment ago, rest on the assumption that absent the changes in the NameSpace extensions, the WordPerfect product would have come out earlier and it would have been much more popular on Windows. And as Novell's I think Mr. Frankenberg testified and other people have testified, that would have made Windows even more popular. But by making Windows even more popular and more successful, I think they even said it

would have increased Microsoft's share in the market and I would agree with that. If you make products better on Windows, remember how Windows got successful, having good applications, if you make Windows even more successful, that is actually going to tend to make it harder for people who are less likely people are going to want to move to another operating system because they're getting what they want on Windows. And that is a problem for his theory because the very mechanism --

Q. Whose theory are you talking about here?

A. Mr. Noll's theory. Mr. Noll's theory is, I'm going to make the applications more popular on Windows, and it is going to set forth this chain of events that is going to make people want to leave Windows. But he is forgetting about the fact that making WordPerfect run better on Windows is actually going to draw people towards Windows. They're going to say wow, I get what I want on Windows, why would I want to go somewhere else. So there is actually a tension there. And Mr. Frankenberg went so far as to say in fact had he been able to release his product on time, Windows would have been more popular. And he said Windows share would be even larger than it was. Which makes it hard to argue that being successful on Windows would lead people to leave Windows and go elsewhere potentially.

Q. Professor Murphy, I think you just covered the

first bullet point on your slide 303. What do you mean by the second one? You say, "In the absence of an effective operating system competitor, Professor Noll's two theories of harm to competition in the PC Operating System market are untenable."

A. Basically both theories rely on the fact that what happens is you make WordPerfect work better on Windows, that makes WordPerfect more successful, that then gives people through these indirect mechanisms an incentive to move elsewhere. But, of course, in order to make that work, there have to be good opportunities to go somewhere else. There have to be other operating systems that are sufficiently attractive that having WordPerfect being able to move over or having the APIs available, makes people want to go there. In other words, there has to be something to draw them over.

And the biggest problem with that theory, is during this period of time there were no real strong competitors out there to take the business away from Windows. In particular, OS/2, by that time, was not very successful. Linux, while it was successful in servers and other areas, was not very successful and really just started as a desktop operating system.

Q. I just want to interrupt you. Is the market for server operating systems part of the relevant market as

Plaintiff Novell defined it?

A. Not in this case it would not be because this was about desktop operating systems.

Q. So Linux being successful on servers, does that have any bearing on this point about effective competitors in the market as defined in this case?

A. Not directly. I mean Linux was served both markets to some extent, it was available to servers and available for desktops. But the competition we're talking about here, this competition would be the operating system that is on my desktop in the office, on my desktop at home. That is the -- what they sometimes call the client operating system.

Q. Professor Murphy, before we get into the details of your two opinions that we have looked at in slide 302, I want to ask you this: For purposes of rendering your opinions about the viability of Professor Noll's two theories, did you assume, for the sake of discussion, that Microsoft's decision in October 1994 was anticompetitive?

A. Yes, I did. I assumed that it was anticompetitive in the sense that I assumed that it -- that the delay occurred and I assumed that that would have some effect on WordPerfect's success. And I analyzed the question of whether in fact that would ultimately lead to a reduction in competition.

Q. So am I right that it wasn't your role in this matter to examine whether or not Microsoft had business justifications for the decision to withdraw support for the NameSpace extension APIs?

A. I did not address that question. I'm not going to address that in my testimony. My testimony is going to be that assuming that they did this, assuming it caused the delay, what would the impact have been. Then when you said I assumed it was anticompetitive, I don't think that is exactly right. I think what we would assume is that it had that effect. It had the effect of creating a delay. And it wasn't -- I am not assuming it was justified by some other action. I think what we're ultimately going to try to determine is whether it reduced competition in PC operating systems. That is what we're going to try to figure out.

Q. Let's look at 304, your slide number 304. And you asked us to put together this excerpt from Professor Noll's testimony. Do you see that, sir?

A. Yes.

Q. And does this bear on this question I was asking a moment ago about whether Microsoft had justification?

A. Yeah, I believe this is a questioning that I think you did of Professor Noll. And you asked him whether in fact there is some cases where there is a legitimate reason to leave APIs undocumented. And I think Professor

Noll agreed that, for example, in the case where those documents, those APIs and those APIs were unstable, would be a reason for not documenting them.

Q. Yes. And Your Honor just to make this clear, the court reporters have been great, but we actually added the word "documenting" after "commenting" because I think that was what said.

THE COURT: I'm sure that is what was said.

MR. TULCHIN: I just want to make clear that was sort of our addition to the transcript the word documenting. Professor, in light of the fact that you're not addressing in your opinion of whether or not there was --

THE COURT: Do you want to object, Mr. Taskier?

MR. TASKIER: I do, Your Honor.

THE COURT: Sustained. Just take the slide down. He is not addressing that.

MR. TULCHIN: All right, Your Honor.

THE COURT: I expected the objection before.

MR. TASKIER: I was trying not to be too obtrusive.

THE COURT: That's right, just trying to be a nice guy.

Q. (By Mr. Tulchin) Okay. Professor Murphy, excuse me, for purposes of Professor Noll's first theory of what you called the franchise applications theory, is it necessary to discuss what has been called earlier in the

case the applications barrier to entry?

A. Yes, it is. In fact for discussing either theory I think starting with the applications barrier to entry, as it has been called, is really necessary because it is really the underpinnings of both theories. It is really what both theories are based on.

Q. Professor Murphy, can you describe for the jury what the applications to barrier -- applications barrier to entry is?

A. I assume you have heard this before so I'll try to keep it brief. The basic idea of the applications barrier entry really comes from two simple facts. Users of computers like operating systems that support lots of applications. Makes sense, right? If I buy a computer, I want to be able to do lots of stuff. That is the whole idea of a computer, it's not like a toaster. It doesn't just do one thing. It allows me to do lots of things. Certainly likes lots of applications. So that is number one.

On the other side of the market, people who write software like to have access to lots of customers. So if you get an operating system that is able to get lots of software written for its operating system, that allows it to gets lots of customers who want to use that operating -- that software, which then, of course, encourages people to write even more software for that platform because that is

where the customers are. And then the customers say I want to go to that platform because that is where the applications are. And that is the applications barrier to entry.

It is really pretty simple. Customers want applications, developers wants customers. And if you get an operating system that is able to bring those two together, it becomes attractive to both. And that makes it hard if I want to compete against it to get people to leave because they like where they are. Customers are getting what they want, lots of applications; developers are getting what they want, lots of customers. And that is the applications barrier to entry.

Q. How does that barrier arise?

A. Well, it kind of grows. I mean it is sort of this -- you can think of it as a reinforcing process. You get some -- you start out, you get some good applications, get a large number of applications going, that allows you to get some more users. As you get more users, you get more applications. As you get even more applications, you get more users. And it sort of snowballs itself up to the point where you have a very successful platform.

Q. In this case does the word barrier have any connotation of any sort of anticompetitive conduct?

A. No, I don't think it does. I think that the word

barriers kind of has that connotation. But as you can see from what I just described, what makes it effective, what makes the applications barrier to entry something that is important, is the fact that fundamentally it is providing the value to the two sides of the market. That is really what it is.

Q. And in your review and analysis did you conclude that the applications barrier to entry, as it pertained to the PC operating system market, came about as a result of the competition between sellers of operating systems?

A. I think that is how it came about. And there was -- there was competition for two things. Operating systems compete to attract users, and they compete to attract developers, the people who write the software. And the applications barrier to entry grew about because the Microsoft platform was very successful in doing both. It was very successful in getting developers to write software, and very successful in getting consumers to move to the platform creating that, you know, positive feedback it is sometimes called.

Q. And how does the applications barrier to entry pertain, if it does at all, to Professor Noll's first theory, the franchise applications theory?

A. Well, a key aspect of the applications barrier to entry is what makes a platform or operating system

successful is not just having a few applications. Because if it was just a matter of having a few applications, it would be easy to go over the applications barrier to entry, you would just get people to write a few applications, people would then come to your platform and you would be able to, you know, grow and win over the market.

The applications barrier to entry is about having a large barrier, large number of applications. Remember it is not like a toaster, it doesn't just do one thing. I want that operating system to support all of the things that I want to do today, things I might want to do in the future, you know, all of the different things that you can do with a computer. And so the applications barrier to entry is about having lots of applications. And that is in conflict with the franchise applications theory. Because Professor Noll's franchise application theory is well if WordPerfect was more popular on Windows, and if WordPerfect were also available on other operating systems that have far fewer applications, that is going to make those people willing to move to those other operating systems. The problem, of course, is the application barrier to entry is about lots of applications, not just a few. And so it is very hard to see, and really inconsistent with the basic theory of the applications barrier to entry, that a small number of applications could make such a large difference in people's willingness to

shift because it is contrary to the whole theory. People talk about Windows advantage being it has tens of thousands of applications, not having a few applications.

Q. Professor Murphy, the jury has heard weeks and weeks ago about findings of fact entered in a case in the District of Columbia. I think Mr. Taskier was kind enough at the outset to read a number of these.

In connection with this subject, are there findings of fact binding on both parties in this case that you believed pertain to or are relevant to the view that you just gave about the applications barrier to entry?

A. Yes, there are a couple.

Q. Could we put up slide number 305. And could you tell the jury what this is and why you are showing it to them?

A. Okay. This is findings of fact 37 from the District of Columbia case that discusses essentially what I just said to you in different words. And it talks about the consumer interest in the PC operating systems derived primarily from the ability of that system to run applications. That is the obvious. And then it goes through and talks about all of the things we just said. That people want things that will do what they want, not just what he wants to do today, but what people may want to do in the future. They don't just want one version of an

application, they want to have a choice in case they don't like one they can get a second one that they get to choose. So it is not about just having one type of application or even one version or one seller's version of that application, it is about having that broad choice.

And the highlighted part you can sort of see reinforces what I just talked about. That the fact that a vastly large number, not a few, but a vastly large number of applications are written for Windows than for other PC operating systems, attracts consumers to Windows because it reassures them that their interests will be met as long as they use Microsoft's product. So that is the finding that is basically saying what I said before about having lots of applications. And if you look at the middle part of this finding, it talks about having them in lots of categories, so not just one category. Even within a category, having more than one choice is important. So they didn't want to go to an operating system where there is only one office productivity application, they liked having two, three, whatever it is. If they don't like one, they can move to the other. So this finding of fact I think is very relevant. It captures much of the same things that I just talked about a moment ago.

Q. And then let's look at the next slide, Professor, number 306. This is another one of those findings of fact.

And why was it your view that you should show this one to the jury in connection with your testimony about the applications barrier to entry?

A. I just wanted to show that in fact the dynamics I was telling you about before, the positive feedback, getting more customers means more developers, getting more developers means more customers. That is exactly what number 39 discusses. It talks about this positive network or feedback effect where you get a lot of customers it implies a lot of ISVs. Those are the software developers, independent software --

THE COURT: Vendors.

THE WITNESS: -- vendors, sorry. Thank you. Software vendors to write applications first and foremost to Windows thereby ensuring a large body of applications for which consumers can choose. A large body of applications thus reinforces the demand for Windows. When I say demand for Windows, I mean on the part of consumers. Now they have lots of applications, they wants lots of -- consumers want to use Windows. And that is the cycle we just talked about. So it is in the findings, not just in the discussion I put forward.

Q. (By Mr. Tulchin) And how do these two slides, these findings of fact and your testimony on this subject, relate to Professor Noll's first theory, the franchise

applications theory?

A. Well, it certainly is a problem for his theory, I think it causes a lot of doubt about his theory. Really inconsistent with his theory because, again, he is talking about a theory in which if WordPerfect were more popular, that that would be enough to cause this -- this reinforcing applications barrier to entry breakdown. And the problem is the applications barrier entry is about this broad selection of applications. It is not about more people being willing to move for a particular application and that is a major source of inconsistency.

Q. Now, is it your view, Professor, in connection with Dr. Noll's theory that the availability of WordPerfect or PerfectOffice or Quattro Pro, all three of them, early on, and on other operating systems, could have diminished or threatened to destroy the applications barrier to entry?

A. There is several reasons that it wouldn't. One of them is the one we just talked about, okay. If we're talking about a narrow slice of applications when operating system choices are made on the basis of the broad section of applications. A second problem that he has is that -- it is not enough that WordPerfect would have been a little more popular. And I think we'll talk about, you know, the actual data. Again, it is nice to tell a story, but it is good to look at the data and ask would this have been something that

would have changed operating system competitions. So we're going to ask the question, you know, how much popular would they have been, and would that be enough, even ignoring these other problems we just talked about.

Third, we can actually look at the actual history. And, in fact, there were quite a few cross platform applications, for example, that existed on OS/2 and on Windows in the early years. WordPerfect was available, Word was available, there were lots of cross platform office productivity applications. And yet the applications barrier to entry still seemed to work in that case as well.

Q. And I think you just said in your last answer you were giving the third reason I think why you -- the third reason in that answer as to why you thought Professor Noll's franchise applications theory doesn't work, am I right?

A. Yes.

Q. And part of that -- part of that third reason you said something like there were plenty of cross platform applications in the early years. Is that what you said?

A. Yeah, there were.

Q. What time period are you talking about?

A. We're talking early nineties. In the early nineties when there was, you know, when OS/2 and that period during which you had Windows and OS/2 and, you know, in fact OS/2 had the ability to run lots of Windows applications.

Q. Okay. We're going to come back to the second reason. The first reason you gave was that three applications, PerfectOffice, WordPerfect and Quattro Pro, aren't enough to break down the applications barrier to entry almost by definition. Is that a fair way of putting it?

A. Yeah, that is correct. That is the one we have already talked about.

Q. And in that connection you looked at these two findings of fact?

A. Yeah, finding of fact as well as just the underlying economics of where the application barrier to entry comes from.

Q. And on the third theory, and we're going to skip the second just for the moment and come back to it, the third reason I should say, on the third reason you pointed out that early on in the early nineties there were plenty of cross platform applications. And what happened during the early nineties, did the existence of these cross platform applications somehow spark extra competition between operating systems?

A. Well, I think it didn't cause a large number of people to leave Windows. I think that is the easiest way to think about it.

Q. And let's go back to your second reason. Could

you tell the jury again what that is?

A. The second reason is if you look at what was going on in the marketplace at the time, and ask yourself the question, remember this franchise application theory rests on the idea that if WordPerfect's applications were more popular, there would be a large group of people who would then be able to shift to another operating system. So one thing you want to ask yourself, what does that look like? What does the data tell you about that? So I prepared some slides about that.

Q. Let's look at them. Slide 307. Can you tell the jury what this is, Professor, and how it is relevant to the point that you just made?

A. Yes. This is looking at the share of word processing software for Windows over time from 1989 to 1996. And in particular, I want to focus you in on WordPerfect's share, okay. So WordPerfect really wasn't in the market at all, this is what Mr. Peterson talked about earlier today. They weren't in the market at all in '89 and '90. They came into the marketplace later in '91 into '92, and their share peaked at about 30 percent in 1992.

And their share was actually declining. And remember, the NameSpace extensions come out at the end of '95. That is when they would have had an effect. So WordPerfect's share had been declining for several years

already. So even if they would have gone back to where they were, or stayed on their own trend, we're still talking a fairly low number of people based on the recent evidence would be using it. Because remember the NameSpace extensions can't be the reason why the WordPerfect share was down there in '93, '94 and even the first part of '95 because Windows 95 hadn't even come out yet.

So even if they were able to get back to that share, you're talking, you know -- you know 20 percent, 10 percent of Windows users. But then that is of people who use a word processor. Lots of people didn't have office productivity applications. Like roughly half of the marketplace didn't have office productivity applications. So as a share of all Windows users, you have got to cut that number in half again. So that the difference between what they actually got in '95, and what they might have got, is a few percent of Windows users.

So ask yourself, if a few percent of Windows users had access to a few extra applications that they could move to another operating system, how was that going to affect competition between operating systems? Right? You're moving a few applications for a few people. That is a very small effect, very -- something that isn't going to cause a change in operating system competition.

Q. Professor, before we leave this slide, and

looking at the WordPerfect line, that is the one in red obviously, right?

A. Yes, it is.

Q. Okay. And this is, just to be clear, this is the market share of word processing software written for the Windows platform, correct?

A. Yes, it is.

Q. And where did you get the data that is depicted on this slide?

A. It came from the IDC reports, which is the same reports we have heard about I think the third time already today, and I assume you have heard about before. So this is the usual source within the industry for looking at sales.

Q. All right. And I think you were saying a moment ago, let's just look at 1994, WordPerfect's share of the word processing market written for the Windows platform was it looks like a little less than 25 percent; is that right?

A. Yeah, it was in the low 20s and going down. It had been falling for two years since introduction of the version Mr. Peterson talked about.

Q. Now, Mr. Gates's decision to withdraw support for the NameSpace extension APIs was made in October of 1994; correct?

A. It was made in October of '94, but any effect wouldn't have come until after Windows 95 came out which

would have been the last part of '95.

Q. Is that what you say or is that according to Professor Noll and Novell or maybe all of them?

A. I think -- I think there is pretty much agreement that Windows 95 came out in August 1995.

Q. So the decision to withdraw the NameSpace extension APIs could not have affected WordPerfect or Novell's market share in '93 or '94 certainly, correct?

A. That is correct.

Q. Or even in '95 before August?

A. It would not have had an effect, and unless they would have came out -- come out with their product in August, it wouldn't have had an effect up until the date that they would have come out which presumably would have been after that any way. So August is the earliest possible.

Q. Thank you, sir. Now, this is only the Windows platform. You put together a slide that includes Windows and DOS, correct?

A. Yes, I did. Because as I think the jury heard earlier today, WordPerfect was far more successful on DOS, so I put that in there.

Q. Let's look at 308. Now can you tell the jury what this slide depicts and what is the significance, Professor, as an economist to putting together this market

share for these two platforms?

A. Well, I think it gives you, you know, because there was several things going on at the same time, there was -- there was what was going on in the competition between word processors on Windows, there was a market shift going from DOS to Windows. And as we'll see in a moment, there was also a shift going from individual products to suites. So we had three things going on. This allowed at least allows us to take account of that shift from DOS to Windows.

Q. Okay. And what does it show with respect to WordPerfect's market share in the combined markets for Windows and DOS in the same period that you were referring to '92, 3, 4 and into 5?

A. Well, I mean first of all it makes obviously WordPerfect's share even larger because they were more successful on DOS than they were on Windows so you have a larger share when you put them together. But in terms of that decline that started in 1992 and carried itself forward, and the fact that that decline had already begun before we got to '95 and the late part of '95, it is clear that was going on here, too. WordPerfect was already losing ground from 1992. And that can't be the NameSpace extensions because they haven't even come out. That is not the issue.

And it was these other changes in the marketplace that were driving WordPerfect down. So even if they had kind of kept on their path that they were on, it was not going to fill this franchise application theory because we're talking about a relatively small fraction of overall operating system users that would have potentially been affected.

Q. Well Professor before we turn to spreadsheets and suites and look at that data, let me ask you this. You just said in your prior answer if they had kept on that same line downward, assume with me just for the sake of discussion that WordPerfect's market share in '95 and '96 would have gone up somewhat had it not been for the decision to withdraw support for the NameSpace extension APIs, let's say it had gone back up to somewhere in the 40 percent range, would that be sufficient to satisfy Professor Noll's theory that the popularity of WordPerfect might have somehow sparked competition in the PC operating system market?

A. I certainly -- economics would say no and I would say why, number one, we're still talking about a relatively small number of applications out of the many applications that affect the application barrier to entry. We're also talking about still a relatively small fraction of all Windows users. Because a 10 point change here (indicating) is 10 point -- is 10 percent of the people who were using

office productivity applications. But that is more like a five percent or less change in the total number of Windows users because there is lots of Windows users who aren't using any of these products. And so you have a small number of applications for a small number of users, that is not going to get you to the -- to the franchise application theory.

Q. Professor, let's look at the chart that you put together for spreadsheets. That is 309. And again, where does the data come from that for all these charts? I mean is this your data or where did it come from?

A. It is still coming from IDC. All these charts are going to be from IDC. If there is one that is not, I'll let you know.

Q. Okay. Thank you, sir. Now slide 309 is entitled Market Share of Spreadsheet Software for the Windows Platform. And I notice that in the early years, '88, '89 and '90, Microsoft has 100 percent of that market, spreadsheets for Windows. What is going on there?

A. That is because Microsoft's products were the only ones available. As we talked about before, Lotus who had their 1-2-3 product and other developers had not developed spreadsheet applications for the early versions of Windows. Lotus is the first one to come out, comes out in 1991, and gets in the upper teens in terms of the share of

market. So '91 is the first one. Borland comes out in '92, picks up around five percent of the market. So they were able to take some of the market away from Microsoft.

But again, and this case started around 1993, we again see and this is again before the NameSpace extensions and any of that, we see already Lotus losing share, Microsoft picking up share, Borland and Novell were never really large sellers of the spreadsheet software. They were always relatively small. So even as we said in the franchise application theory, even if they got back to where they were, those early years that is not very far.

Q. Now, we put together a chart that showed market shares for the Windows and DOS platform together, correct?

A. Yes. It is the same thing we did when we did it for word processors.

Q. Right. So let's look at that. This is spreadsheets market share for the two platforms combined. Do you see that, sir?

A. Yes, I do.

Q. Now, the jury has heard a lot about Excel in this case, but just to explain one little thing if we could, the blue line upwards, that is Microsoft's share?

A. Yes, it is.

Q. And what is multi-plan? You have some reference there to something called multi-plan?

A. That was a Microsoft spreadsheet program that they had before they had Excel.

Q. Was that written to DOS?

A. I believe it was. It wasn't that successful. I think as Mr. Peterson said, Excel was really a key product for Microsoft. It was very successful. Originally on the Mac, it was very successful on the Mac, and subsequently very successful on Windows.

Q. And, of course, the Mac is not part of these charts because as you said earlier, for purpose of the market definition that Novell provided and you assumed, it is not in this market?

A. That is correct. But from an economic standpoint, the fact that the Excel software was so successful so the Mac, which was also a GUI or graphical user interface product, I think tells you something. I mean Excel was an exciting product from the point of view of consumers.

Q. All right. Well, before we go through this chart, let me just follow up on that. You said from the point of view of I think economics the success of Excel on this other platform, the Apple MacIntosh, tells you something. What does it tell you as an economist?

A. Well, it tells me that Microsoft produced a product that was attractive to consumers. That they were

consumers on the Mac adopted both Excel and Word as far and away the most popular in their categories on a Mac. Microsoft was much more successful than WordPerfect on the Mac. Microsoft was much more successful than Lotus and spreadsheets on the Mac. Microsoft's software on the Mac was very successful. Its office software, I think, has been the most popular software for the Mac for a long period of time.

Q. Starting when, do you remember?

A. Way back in this early period. Way back in these days. I mean it was very successful on the Mac really before it was a big factor on the PC operating systems. And, you know, the experience -- I think one way to think about it economically is the experience that Microsoft gained writing for the Mac platform which was a Windows-like platform, a GUI type platform, I think was very helpful to them.

Q. All right. Let's go back to number 310. This is -- this shows you market shares. Now again, the red line is Quattro Pro, during the time that it was owned by Borland and then by Novell. How does the market share figures for Quattro Pro, how did that pertain at all to the franchise applications theory that Professor Noll advanced and that you have given your opinion about?

A. Well, I think what this tells you is that they

had never been franchise applications even in the past. They had not been applications that they were sufficiently popular, that they would drive people to say boy, I will move to another operating system because they have this one I'm using. But if you look at it, even at their peak only about 10 percent of spreadsheet users are using Borland, are using the Quattro Pro product. But more importantly, by the time you get to '94, it is a very, very small fraction of people that are using this product.

So even if it was able to maintain or even increase somewhat, that popularity, that is a very small number of users. Certainly a small number that would have a hard time having any impact on operating system competition. It is just not going to change the dynamics of the overall market's willingness to move to another operating system and away from Windows.

Q. And let's look at slide 311. Now, this is a slide that you put together, Market Share of Office Suites for the Windows Platform; correct?

A. Yeah. Again, this is IDC data.

Q. Right.

A. This is looking at suites now.

Q. This is looking at suites. Now, is this slide, the one that pertains to suite, suites, of any particular importance as you get into '94 and '95 or beyond as it

pertains to Professor Noll's theory?

A. Yeah, again the franchise application theory is that a sufficient number of users would be using the WordPerfect suite in this sense, in this case, that that would then make it much more likely that people would shift over and adopt an alternative operating system and therefore breakdown the applications barrier to entry. And as you can see here, there were really low numbers. And that has a particular significance, that is the red line is way down there, and that has really particular significance because the market was moving more and more to buying things in suites. People were moving to buy in a suite rather than individual products. So that movement towards Windows wasn't helping WordPerfect's and Borland's products. The movement towards suites wasn't helping them. All of those things were really limiting their ability to serve this franchise application hole.

And, in fact, when you look at the overall numbers of suites, there is just -- I don't see how one can argue that something in that range could be a franchise application that would induce people to then be sufficiently more willing to move to other operating systems that the operating system marketplace would somehow be transformed. It just -- the numbers just don't add up.

Q. Professor Murphy, assume with me just for the

sake of our discussion that the decision in October 1994 to withdraw support for the NameSpace extension API had caused a delay in the release of PerfectOffice, and assume with me also for discussion that if PerfectOffice had been able to come out sooner, let's say in September or October, just for the sake of discussion, 1995, that PerfectOffice's market share would have been double or triple the market share it actually got, maybe it would have been 15 percent of the market.

What impact would that have on this theory that PerfectOffice, had it been more popular, could somehow have sparked some competition in the market for operating systems?

A. Again, I think it just gets back to the sheer numbers. Had it been more popular, it still would have been sub ten percent in terms of its overall share. Remember that is still 10 percent of office productivity application users which would mean an even smaller percentage of all Windows users. So we're still talking about affecting a relatively small number of applications for a relatively small number of users. That is really just not going to cut it.

Q. But do me a favor, don't limit yourself to 10 percent or any number in that range. Just assume with me for the sake of discussion that PerfectOffice had come out

in the fall of '95 and had gained let's say a 20 percent share, something like four times higher than what it actually got, could that have any impact on the operating system market under Professor Noll's theory?

A. No, I don't believe it would.

Q. Before we turn to the second theory, could you just provide me, if you would, with the summary of the reasons that you think Professor Noll's theory, the franchise applications theory lacks any viability?

A. I would say you start with the very nature of the applications barrier to entry. That it is about a large number of applications and the fact that one operating system has vastly more operating applications than others. Given this would have affected only a small number of applications, it is hard to see how that would overcome the applications barrier to entry, even if those applications were very popular.

Secondly, given the track record, given what was happening in the marketplace prior to this NameSpace extension and prior to the alleged delay, the WordPerfect share was small within those applications. As I said before, a small number of users for a very small number of applications when viewed from a point of view of operating system competition. I think those are really the keys. That it just wouldn't have had the effect necessary to

change the competitive dynamics. And let me come back to two other things that I mentioned as additional problems.

The other ones are it wasn't clear where they were going to go with this. OS/2 was not doing well at all. Linux on the desktop had really gone no where at that point. Hard to see that there was a viable candidate out there for them to move to at the time. And at the same time, you know, the -- if they had become more popular on Windows, that would actually tend, if anything, to make Windows more attractive. There is less reason to leave if you can get what you want on Windows. So that is kind of a counterveiling offsetting effect that actually may push the market in the opposite direction and actually may raise rather than lower Windows share if it had any effect at all.

MR. TULCHIN: Okay.

THE COURT: This is such a -- I hope the lunch is here, I assume you're going onto the second.

MR. TULCHIN: I am, Your Honor.

THE COURT: Let's break for lunch and let me stay here with counsel for just one moment. You can stay in the courtroom, Professor, it has not got nothing to do with you.

THE WITNESS: Okay.

(Whereupon, the jury left the courtroom.)

THE COURT: So I don't forget, I do want to respond to the jurors questions today. And Mr. Johnson raised a good

point and it may about -- if in fact Microsoft was told about this before the suit was filed, that really is what would be relevant to the other argument. So what I would like to do is tell the jury you may hear closing argument or not about the date they learned the suit was going to be filed which may relate to other issues. And then if you all decide you want to use it in closing argument, if you can just stipulate when that date was and use that date in the closing argument. I think Mr. Johnson is absolutely right in fact there was -- you were told about that theory sometime before the suit was filed. That is what is going to be relevant.

MR. TULCHIN: I think we probably can, Your Honor.

THE COURT: And you may not even use it. You may choose not to use it in the argument, but if it comes in it seems like the way to handle it is to look into it and stipulate.

MR. TASKIER: One issue, Your Honor, I think the next slide has a source reference to the testimony of Roger Noll and findings of fact. And we think that it is a little misleading that that is what Dr. Noll said.

THE COURT: What is it?

MR. TASKIER: It relates to the three requirements for the theory that MiddleWare propose a threat to Microsoft's position and the PC operating system market must be cross

platform, it must be available on all or nearly all PCs, and must expose enough APIs to allow ISVs profitably to write full-featured productivity applications that rely solely on those APIs. I don't think Professor Noll agreed with all of those points, and I think that putting it in his mouth is misleading. I have no objection to using the slide if --

THE COURT: No, no, I understand. I understand.

MR. TULCHIN: It actually says for source Professor Noll and cites the pages of his transcript, and then it adds and findings of fact, I forget the numbers, 28 and 32, I think, they are. So Mr. Taskier may be right that Professor Noll on the third point didn't say exactly that, but I think that is why Professor Murphy added the findings of fact as a source reference, you know.

THE COURT: Well, bring that out in the testimony. And I think it is a fair point in the instructions. I am aware that I may be weighing in on that, and that is something I want to hear about when we discuss instructions, so handle that when you ask professor -- make it clear what Mr. Taskier pointed out that perhaps Mr. Noll did not agree with that.

MR. TULCHIN: Your Honor, could I raise some scheduling point and I hope this is taken by the court as good news. We may end tomorrow earlier than 1:30. Professor Bennett, who will be here Monday, cannot be here

tomorrow because of the very --

THE COURT: I am not going to complain if you -- if we -- just let me know as soon as possible so I can tell the jury.

MR. TULCHIN: We will. It depends on the amount of cross primarily. But I do still think that our case will probably be over on Monday. If it spills into Tuesday just a tiny bit it will, but I am hoping --

THE COURT: So we really have left is the professor?

MR. TULCHIN: And we have Professor Murphy. We are still thinking about whether to call Mr. Blount. We haven't made any determination about that. If we do it will be Monday. And then the only other witness is Professor Bennett, John Bennett, who is the sort of anti-Alepin expert, if I can put it that way.

THE COURT: Same area of expertise.

MR. TULCHIN: Exactly, Your Honor.

MR. JOHNSON: Your Honor, if we're trying to complete this on Monday, and now they're talking about bringing another witness on Monday in addition to an expert. Clearly that is not going to work. When are we getting a decision on Mr. Blount?

MR. SCHMIDTLEIN: And Mr. Blount, whether Mr. Blount testifies, could directly impact our rebuttal case.

MR. JOHNSON: In a major way.

MR. TULCHIN: We have asked for the courtesy about, you know, their rebuttal case, and I understand Mr. Schmidtlein's point and I'm not here to argue about it. What I would like to be able to do is to tell Novell tomorrow morning whether or not we intend to call Mr. Blount, and we will do it before 8:00 a.m., if that is satisfactory to everybody.

THE COURT: That sounds reasonable. That is good.

MR. TULCHIN: Is that okay?

MR. SCHMIDTLEIN: That will help.

THE COURT: So tomorrow, and again I -- the one big piece that may require time, and it may not, there are two issues still. They have a motion in limine about Mr. Bennett which I assume you all were thinking about and perhaps -- perhaps the reason you haven't responded is because you may --

MR. TULCHIN: We have responded, Your Honor.

MR. HOLLEY: We did last night. I'm happy to hand Your Honor a copy of our paper.

THE COURT: Okay. Theresa will give it to me.

And the other thing which could be more time consuming is the exhibits issue. So if you all could get something filed or maybe the way to do that, I am just a little worried that is going to be time consuming.

MR. HOLLEY: Perhaps we could address --

THE COURT: I think that is -- you all haven't filed a memorandum yet. I understand you're waiting to hear what they say.

MR. PARIS: That is exactly right, Your Honor. But we'll take it up tomorrow.

THE COURT: If you all can talk, if there are exhibits that are yours, it seems to me the easiest way to do it, unless there is something in that they really want, is to take my point you shouldn't just have a document dump if they're concerned about you dumping documents for them to tell you. That is easiest way to solve the problem. But, you know, that is not -- it is not my job to solve problems, my job is to rule. So if Novell wants to go through them document by document, that is what I have to do.

In terms of instructions, we'll talk about them this afternoon. Before we -- I just want to thank you all, I mean my job is to -- you also have your exceptions, but the nature of the responses to the second beta or the second group is very constructive. I mean we're narrowing it down to where I want to get balanced instructions and I appreciate not every possible objection being raised and I just want to thank you all.

MR. HOLLEY: Your Honor, along those lines, we just filed by ECF this morning, and I am handing a copy to Mr. Johnson and I would like to give Your Honor a copy,

these are two issues of principal but largely typographical or technical changes, Your Honor, which I hope will be useful for the court.

THE COURT: That is fine.

MR. HOLLEY: Thank you, Your Honor.

THE COURT: I wanted to ask you, Mr. Holley, whether you knew that your partner, your senior partner, as I recall, signed a letter that said that the government could certainly find an antitrust violation for purposes of injunctive relief. I would have thought that would have given you nightmares.

MR. HOLLEY: Which senior partner was this, Your Honor?

THE COURT: If Mr. Tulchin comes back bloodied I know who --

MR. TULCHIN: I just sign whatever he tells me to, Your Honor. So that is my usual practice.

THE COURT: And I don't have it quite right, but it seems to me that the letter might have yielded more than Mr. Holley would have been happy with. Thank you.

(Recess.)